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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/681,857	06/19/2001	Subhasish Roychoudhury	RD-27738	7086

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GENERAL ELECTRIC COMPANY
GLOBAL RESEARCH
PATENT DOCKET RM. BLDG. K1-4A59
NISKAYUNA, NY 12309

EXAMINER	
STEVENS, THOMAS H	
ART UNIT	PAPER NUMBER
2123	3

DATE MAILED: 09/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/681,857	ROYCHOUDHURY, SUBHASISH	
	Examiner	Art Unit	
	Thomas H. Stevens	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 June 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 June 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *9/24/01*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-10 were examined.

Claim Rejections - 35 USC § 112

2. Regarding claims 6-10, the phrase "system" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

3. Furthermore, two dependent claims of different statutory types are mistakenly linked together: dependent claim 7 (a system) is linked to method dependent claim 5, thus mixing two statutory types.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 1-5 are rejected under 35 U.S.C. 101 because the claims are not in the technological arts. One of ordinary skill in the art could execute the process with pencil and paper.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Schlitz ("Simulation of Gas Dynamics and Electromagnetic Process in High-Current Arc Plasmas" (1998)). Schlitz teaches a strategy to numerically study thermal plasma arc columns under high-current conditions (pg. iv).

Claim 1. A method for modeling electric arc behavior (pg. 122, title and paragraphs 1-3), said method comprising the steps of: determining electrical conductivity distribution in an arc (pg. 126, 3rd paragraph); determining a current density distribution of the arc based on the determined electrical conductivity (pg. 136, lines 1-3, Biot-Savart Law).

Claim 2. A method according to Claim 1 (pg. 122, title and paragraphs 1-3; pg. 126, 3rd paragraph) wherein electrical conductivity distribution in the arc is determined using temperature and pressure distribution with an arc chamber (pg. 136, lines 1-15).

Claim 3. A method according to Claim 1 (pg. 122, title and paragraphs 1-3; pg. 126, 3rd paragraph) wherein determining current density distribution comprises the step of determining electrical potential of the arc (pg. 137, lines 3-6).

Claim 4. A method according to Claim 1 (pg. 122, title and paragraphs 1-3; pg. 126, 3rd paragraph) further comprising the steps of: determining magnetic fields (pg. 138. lines 13-17) and Joule heating (pg. 132, lines 1-18 and pg. 136, lines 14-15) using the determined current density distribution (pg. 136, lines 1-3, Biot-Savart Law); and determining magnetic forces from the determined magnetic fields (pg. 123, 2nd paragraph).

Claim 5. A method according to Claim 4 (pg. 122, title and paragraphs 1-3; pg. 126, 3rd paragraph) further comprising the step of determining gas dynamics field using the determined Joule heating (pg. 132, lines 1-18) and magnetic forces (pg. 145, lines 1-3).

Claim 6. A system for modeling electric arc behavior (pg. 122, title and paragraphs 1-3), said system comprising: a server computer (pg. 140, section 5.2.2); a first client computer coupled to said server computer (pg. 140, section 5.2.2, lines 1-11, first client=slave organization), said first client computer programmed (pg. 122, title and paragraphs 1-3) to determine electrical conductivity distribution in an arc; and a second client computer coupled to said server computer (pg. 146, lines 18-21; "users"), said second client computer programmed to determine a current density distribution of the arc based on the determined electrical conductivity distribution (pg. 122, title and paragraphs 1-3).

Claim 7. A system according to Claim 5 (pg. 122, title and paragraphs 1-3; pg. 126, 3rd paragraph) wherein said first client computer (pg. 140, section 5.2.2, lines 1-11, first client=slave organization) is programmed to determine electrical conductivity distribution in the arc (pg. 122, title and paragraphs 1-3) using temperature and pressure distribution (pgs. 124 2nd and 3rd paragraph) with an arc chamber (pg. 122, 3rd paragraph).

Claim 8. A system according to Claim 5 (pg. 122, title and paragraphs 1-3; pg. 126, 3rd paragraph) wherein said second client computer is programmed to determine electrical potential of the arc (pg. 146, lines 18-21; "users").

Claim 9. A system according to Claim 5 (pg. 122, title and paragraphs 1-3; pg. 126, 3rd paragraph) wherein said second client computer (pg. 146, lines 18-21; "users") is further programmed to determine magnetic fields (pg. 133, section 5.2) and joule heating using the determined current density distribution (pg. 137,lines 3-60, and magnetic forces from the determined magnetic fields (pg. 123, 2nd paragraph).

Claim 10. A system according to Claim 9 (pg. 122, title and paragraphs 1-3; pg. 126, 3rd paragraph) wherein said second client computer (pg. 146, lines 18-21; "users") is further programmed to determine gas dynamics (pg. 124, 2nd paragraph) field using the

determined joule (pg.124, 2nd paragraph; although stated in Kelvin, values are easily converted into Joules) heating and magnetic forces (pg.123, section 5.1, 2nd paragraph).

Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mr. Tom Stevens whose telephone number is (703) 305-0365, Monday-Friday (8:00 am- 4:30 pm) or contact Supervisor Mr. Kevin Teska at (703) 305-9704. The fax number for the group is 703-872-9306.

Any inquires of general nature or relating to the status of this application should be directed to the Group receptionist whose phone number is (703) 305-3900.

September 22, 2004

THS

KEVIN J. TESKA
SUPERVISORY
PATENT EXAMINER